

Appl. No. 10/035,413
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Reply to Office Action of May 18, 2006

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claims 1 - 3. (Canceled)

4. (Currently Amended) A ~~customizable application system for generating a~~ customizable application user interface, comprising:

~~an internet application system configured to support an internet application, the internet application associated with metadata configured for use in generating an application user interface including a user interface element, the internet application system including,~~

a) ~~a user interface generator configured to generate the application user interface using the metadata, and~~

b) ~~a web application server configured to deliver the application user interface to a client;~~

an application development system configured to allow for the specification of a user interface element in the application user interface, the user interface element having a customizable immediate access keystroke combination associated therewith, the application development system being further configured to generate the metadata characterizing the metadata being further configured to characterize a the user customizable immediate access keystroke combination associated with the user interface element;

a configuration system including a configuration engine and a configuration interface, the configuration interface configured to modify configuration data further characterizing the customizable immediate access keystroke combination in response to receiving input from a user defining the customizable immediate access keystroke combination, the keystroke combination for a function to be performed for the user interface element; and

a data repository including a data record for storing the configuration data, the data record being accessible using the metadata, the data record defining the function; [[,]]

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an application user interface generator configured to generate the application user interface in response to a request from a client device, the user interface generator configured to use the data record to determine a current state of the user customizable immediate access keystroke combination at substantially the time of the request and generate markup language including the current state of the user customizable immediate access keystroke combination;
and

a web application server operable to deliver the generated markup language for the application user interface to the client device.

~~wherein the application user interface is automatically generated and configured to perform the function for the user interface element when the immediate access keystroke combination is received.~~

5. (Currently Amended) An application development system for developing an internet application having an application user interface, the application development system comprising:

an integrated development environment configured for specifying a user interface element in the application user interface, the user interface element having a user customizable immediate access keystroke combination, the integrated development environment configured to receive input from a user defining the customizable immediate access keystroke combination, the keystroke combination for a function to be performed for the user interface element; and

an application designer configured to produce metadata to characterize the customizable immediate access keystroke combination, the metadata defining the function,

wherein, in response to a request from a user device, a current state of the customizable immediate access keystroke combination is operable to be determined using the metadata and used at substantially the time of the request to generate the application user interface to be sent to the user device, the application user interface including the current state of the customizable immediate access keystroke combination, and

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wherein the application user interface is automatically generated and configured to perform the function for the user interface element when the immediate access keystroke combination is received at the user device.

6. (Previously Presented) The application development system of claim 5, wherein the immediate access keystroke combination is a hotkey keystroke combination.

7. (Previously Presented) The application development system of claim 5, wherein the immediate access keystroke combination is responsive to the identity of a user.

8. (Currently Amended) A ~~customizable application~~ system for developing an application user interface associated with an internet application, comprising:

an integrated development environment configured for a developer to specify a user interface element in the application user interface, the user interface element having a user customizable immediate access keystroke combination, the integrated development environment configured to receive input from the developer defining the customizable immediate access keystroke combination, the keystroke combination for a function to be performed for the user interface element;

an application designer configured to produce metadata characterizing the user customizable immediate access keystroke combination; [[and]]

a data repository including a data record associated with the customizable immediate access keystroke combination and accessible using the metadata, the data record being user modifiable by a user of the application user interface and being configured to store data used to further characterize the customizable immediate access keystroke combination, the data record defining the function; and [[.]]

an application user interface generator configured to generate ~~wherein the application user interface~~ in response to a request from the user, the user interface generator configured to use the data record to determine a current state of the user customizable immediate access keystroke combination at substantially the time of the request and generate markup language to be sent to the user in response to the request, the markup language including the

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current state of the user customizable immediate access keystroke combination, wherein the application user interface is automatically generated and configured to perform the function for the user interface element when the immediate access keystroke combination is received.

9. (Previously Presented) The customizable application system of claim 8, wherein the user customizable immediate access keystroke combination is a hotkey keystroke combination.

10. (Previously Presented) The customizable application system of claim 8, wherein the user customizable immediate access keystroke combination is configurable according to the identity of a user.

11. (Previously Presented) The customizable application system of claim 8, wherein the data record is user modifiable using a configuration system.

12. (Previously Presented) The customizable application system of claim 8, wherein the data record is user modifiable using a personalization system.

13. (Previously Presented) The customizable application system of claim 12, wherein the personalization system is integrated into the internet application.

14. (Currently Amended) An application execution system, comprising:
a configuration system configured to modify a data record in response to receiving input from a user defining a customizable immediate access keystroke combination, the keystroke combination for a function to be performed for a user interface element
an internet application system configured to support an internet application, the internet application system including a query processor configured to query a data repository, the data repository including the user-modifiable data record configured to store data characterizing a user customizable immediate access keystroke combination, the data record defining the function; and [[,;]]

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an application user interface generator configured to generate the application user interface in response to a request from a user, the application user interface generator configured to use the data record to determine a current state of the user customizable immediate access keystroke combination at substantially the time of the request and generate markup language including the current state of the user customizable immediate access keystroke combination, including the user interface element, the application user interface configured as an interface between the internet application and ~~[[a]] the user and , the user interface element including the user customizable immediate access keystroke combination, the user interface element~~ configured for delivery to a client over a computer network, ~~wherein the application user interface is automatically generated and configured to perform the function for the user interface element when the immediate access keystroke combination is received; and~~

~~metadata further characterizing the customizable immediate access keystroke combination.~~

15. (Previously Presented) The application execution system of claim 14, wherein the client supports the application user interface using standard web browser protocols.

16. (Previously Presented) The application execution system of claim 14, wherein the client supports the application user interface using features of a web browser, the features not requiring a browser add-on, plug-in, or extension.

17. (Previously Presented) The application execution system of claim 14, further including a personalization system configured to modify the user modifiable data record.

18. (Previously Presented) The application execution system of claim 17, wherein the personalization system is included in the internet application.

19. (Currently Amended) An ~~internet application~~ system for providing a user interface, comprising:

a configuration system configured to modify data characterizing a user customizable immediate access keystroke combination in response to receiving input from a user

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defining the customizable immediate access keystroke combination for a function to be performed for a user interface element;

a user interface generator configured to generate the [[a]] user interface in response to a request from the user, the user interface generator configured to determine a current state of the customizable immediate access keystroke combination at substantially the time of the request and generate markup language including the current state of the customizable immediate access keystroke combination for including the user interface element, the user interface being compatible with a standard web browser and being generated in response to a request from a user, the user interface element including [[a]] the user customizable immediate access keystroke combination, wherein the user interface is automatically generated and configured to perform the function for the user interface element when the immediate access keystroke combination is received; and

a web application server configured to deliver the generated markup language for the user interface to a client, ; and

~~an internet application accessible to the user through the generated user interface.~~

20. (Previously Presented) The internet application system of claim 19, wherein the user interface generator is further configured to use metadata to characterize the user customizable immediate access keystroke combination.

21. (Previously Presented) The internet application system of claim 19, wherein the user customizable immediate access keystroke combination is a hotkey keystroke combination.

22. (Previously Presented) The internet application system of claim 19, wherein the user interface generator is further configured to use a user modifiable data record to characterize the user customizable immediate access keystroke combination.

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23. (Previously Presented) The internet application system of claim 19, further including means for accessing a user-modifiable data record including data characterizing the user customizable immediate access keystroke combination.

24. (Previously Presented) The internet application system of claim 19, wherein the internet application includes a configuration system configured to modify data characterizing the user customizable immediate access keystroke combination.

25. (Previously Presented) The internet application system of claim 19, wherein the client is a wireless system.

26. (Previously Presented) The internet application system of claim 19, wherein the client is a programmable device configured to support standard web browser protocols.

Claims 27-34. (Canceled)

35. (Currently Amended) A method of developing a customizable user interface element for inclusion in an application user interface, the method comprising the steps of:

developing determining a user interface element to be included in the application user interface;

specifying a customizable property of the user interface element, the customizable property including a user customizable immediate access keystroke combination;

determining a data record for holding a value configured to characterize the user customizable immediate access keystroke combination, the data record being stored in a data repository and being user modifiable, the data repository being physically remote from a client used to display the application user interface, the application user interface being for accessing an internet application;

generating metadata further characterizing the user customizable immediate access keystroke combination, the metadata including a reference to the data record;

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storing the metadata in association with the user interface element;
receiving input from a user defining the customizable immediate access keystroke combination for a function to be performed for the user interface element; and
configuring the value of the data record to define the function,
wherein, in response from a request from the client, the value of the data record is operable to be used to determine a current state of the customizable immediate access keystroke combination at substantially the time of the request, the current state operable to be used to generate markup language for the application user interface including the current state of the customizable immediate access keystroke combination, the application user interface operable to be sent to the client and ~~application user interface is automatically generated and configured to perform the function for the user interface element when the immediate access keystroke combination is received~~ at the client.

36. (Previously Presented) The method of claim 35, wherein the user customizable immediate access keystroke combination is a hotkey keystroke combination.

37. (Previously Presented) The method of claim 36, wherein the step of specifying a customizable property is performed using an integrated development environment.

38. (Previously Presented) The method of claim 36, wherein the internet application includes a configuration system configured to modify the data record.

39. (Currently Amended) A method of generating a customizable application user interface, the method comprising the steps of:

accessing a page definition in response to a request from a client, the page definition including metadata for characterizing a user customizable immediate access keystroke combination;

accessing a data record using the metadata, the data record being stored in a data repository and being user modifiable in response to receiving input from a user defining the customizable immediate access keystroke combination for a function to be performed for the

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user interface element, the data record defining the function, the data repository being physically remote from [[a]] the client used to display the user customizable application user interface;
determining a current state of value characterizing the user customizable immediate access keystroke combination at substantially the time of the request using information stored in the data record;
generating markup [[-]] language responsive to the determined value, the markup language including the current state of the customizable immediate access keystroke combination; and
sending the generated markup language to the client to display the application user interface, the application user interface including the generated markup language in an application user interface, wherein the markup language is usable to automatically generate the application user interface that is configured to perform the function for the user interface element when the immediate access keystroke combination is received.

40. (Previously Presented) The method of claim 39, wherein the customizable application user interface is a user interface to an internet application.

41. (Previously Presented) The method of claim 40, further including a step of modifying the data record using a configuration system.

42. (Previously Presented) The method of claim 40, wherein the step of accessing a data record using the metadata is responsive to the identity of a user.

43. (Previously Presented) The method of claim 40, wherein the user customizable immediate access keystroke combination is a hotkey keystroke combination.

44. (Currently Amended) A method of developing an HTML based interface between a user and an application, the method comprising the steps of:

receiving a selection of a user interface element from a user in response defining a customizable immediate access keystroke combination, the keystroke combination for a function to be performed for the user interface element;

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associating the user interface element with a data record, the data record being stored in a data repository and being user modifiable, the data record defining the function; [[,;]]

~~including the user interface element in the interface, wherein the interface is automatically generated and configured to perform the function for the user interface element when the immediate access keystroke combination is received;~~

generating metadata characterizing the user customizable immediate access keystroke combination, the metadata being for accessing the data record; and

storing the metadata in association with the application,

wherein the data record is operable to be used, in response to a request from a client, to determine a current state of the customizable immediate access keystroke combination at substantially the time of the request, the current state operable to be used to generate markup language for the application user interface including the current state of the customizable immediate access keystroke combination, the generated markup language operable to be sent to the client for display to a user.

45. (Previously Presented) The method of claim 44, wherein the application is an internet application.

46. (Previously Presented) The method of claim 45, wherein the metadata is configured to access the data record responsive to an identity of a user of the application.

47. (Previously Presented) The method of claim 45, wherein the customizable immediate access keystroke combination is a hotkey keystroke combination.

48. (Currently Amended) A method of customizing an immediate access keystroke combination in an HTML based application user interface for accessing an internet application, the method comprising the steps of.

accessing a configuration system, the configuration system including a configuration engine and a configuration interface;

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selecting, using the configuration interface, the immediate access keystroke combination of a user interface element in the HTML based application user interface, the immediate access keystroke combination being user customizable, the keystroke combination for a function to be performed for the user interface element; and

specifying configuration data using the configuration interface, the configuration data characterizing the immediate access keystroke combination and the configuration data being stored in a data repository physically remote from a client used to display the HTML based application user interface, the configuration data defining the function,

wherein, in response to a request from a client, the configuration data is operable to be used to determine a current state of the customizable immediate access keystroke combination at substantially the time of the request, the current state operable to be used to generate HTML for the application user interface including the current state, the generated HTML operable to be transmitted to the client for displaying the application user interface, the application user interface is automatically generated and configured to perform the function for the user interface element when the immediate access keystroke combination is received.

49. (Previously Presented) The method of claim 48, wherein the immediate access keystroke combination is a hotkey keystroke combination.

50. (Previously Presented) The method of claim 48, wherein configuration data is configured to characterize the immediate access keystroke combination responsive to an identity of a user of the internet application.

51. (Previously Presented) The method of claim 48, further including a step of modifying the configuration data using a personalization system.

52. (Previously Presented) The method of claim 48, wherein the HTML based application user interface is displayed at the client without requiring a browser add-on, plug-in, or extension.

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53. (Currently Amended) A method of customizing an immediate access keystroke combination in an application user interface, the method comprising the steps of:

- accessing a configuration system, the configuration system including a configuration engine and a configuration interface;
- selecting, using the configuration interface, an immediate access keystroke combination of a user interface element in an application user interface, the immediate access keystroke combination being user customizable, the keystroke combination for a function to be performed for the user interface element;
- specifying configuration data using the configuration interface, the configuration data characterizing the immediate access keystroke combination, the configuration data defining the function; and
- sending a request for the application user interface, in response to which a current state of the immediate access keystroke combination is determined at substantially the time of the request, the current state being used to generate markup language for the application user interface including the current state; and
- receiving automatically generating the generated markup language and displaying the application user interface, using the specified configuration data, the application user interface being associated with an internet application and configured to perform the function for the user interface element when the immediate access keystroke combination is received.

54. (Previously Presented) The method of claim 53, further including a step of displaying the application user interface using standard web browser protocols.

55. (Previously Presented) The method of claim 53, wherein the immediate access keystroke combination is a hotkey keystroke combination.

56. (Previously Presented) A method of executing an internet application comprising the steps of:

- receiving a request for an application user interface from a client, the application user interface including a user interface element;

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accessing a page definition, the page definition including metadata characterizing the requested application user interface;

retrieving, using the metadata, a value characterizing a user customizable immediate access keystroke combination of the user interface element, the value being stored in a data repository physically remote from the client, the value defining a function for the customizable immediate access keystroke combination, the keystroke combination for the function to be performed for the user interface element being received from a user;

automatically generating HTML responsive to the retrieved value;

including the generated HTML in the requested application user interface; and

delivering the requested user interface to the client, the requested application user interface being an interface between a user and the internet application, wherein the application user interface is configured to perform the function for the user interface element when the immediate access keystroke combination is received.

57. (Previously Presented) The method of claim 56, wherein the user customizable immediate access keystroke combination is a hotkey keystroke combination.

58. (Previously Presented) The method of claim 56, wherein the retrieved value is personalization data.

59. (Previously Presented) The method of claim 56, further including a step of displaying the application user interface on the client using standard web browser protocols.

60. (Previously Presented) The method of claim 56, further including the step of identifying the requestor, wherein the step of retrieving a value is responsive to the identity of the requester.

61. (Previously Presented) The method of claim 56, wherein the step of retrieving a value is responsive to inclusion of the application user interface in an application component.

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62. (Currently Amended) A method of generating an application user interface including a user customizable immediate access keystroke combination, the method comprising the steps of:

accessing a page definition in response to a request from a client device, the page definition including metadata associated with the user customizable immediate access keystroke combination;

reading data from a data record using the metadata, the data record being stored in a data repository and being user modifiable, the data repository being physically remote from ~~[[a]]~~ the client device used to display the application user interface, the data record defining a function for the customizable immediate access keystroke combination, the keystroke combination for the function to be performed for the user interface element being received from a user;

determining a value characterizing the user customizable immediate access keystroke combination using the data read from the data record;

automatically generating HTML for the application user interface responsive to the determined value at substantially the time of the request; and

including transmitting the generated HTML for in the application user interface to the client device, the application user interface being for accessing an internet application, wherein the application user interface is configured to perform the function for the user interface element when the immediate access keystroke combination is received.

63. (Previously Presented) The method of claim 62, wherein the user customizable immediate access keystroke combination is a hotkey keystroke combination.

64. (Previously Presented) The method of claim 62, wherein the data record includes personalization data.

65. (Previously Presented) The method of claim 62, further comprising:
delivering the application user interface to the client; and

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displaying the application user interface at the client using standard web browser protocols.

66. (Previously Presented) The method of claim 62, further including identifying the client, wherein the step of reading data is responsive to the identity of the client.

67. (Previously Presented) The method of claim 62, further including a step of identifying a user, wherein the step of reading data is responsive to the identity of the user.

68. (Currently Amended) A method of generating a user customizable application user interface configured for delivery from a server to a client, the method comprising the steps of:

receiving a request for the user customizable application user interface from a requestor, the user customizable application user interface including a user interface element;

identifying the ~~requester~~ requestor of the user customizable application user interface;

accessing a page definition, the page definition including metadata characterizing the requested user customizable application user interface;

retrieving a value characterizing a customizable immediate access keystroke combination included in the user interface element, using the metadata and the identity of the ~~requester~~ requestor, the value being user modifiable and being stored in a data repository physically remote from the client, the value defining a function for the customizable immediate access keystroke combination, the keystroke combination for the function to be performed for the user interface element being received from a user;

automatically generating HTML for the customizable application user interface responsive to the value at substantially the time of the request; and

~~including the generated HTML in the requested user customizable application user interface; and~~

delivering the generated markup language for the requested user customizable application user interface to the client, wherein the application user interface is configured to

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perform the function for the user interface element when the immediate access keystroke combination is received.

69. (Previously Presented) The method of claim 68, wherein the customizable immediate access keystroke combination is a customizable hotkey keystroke combination.

70. (Previously Presented) The method of claim 68, further including displaying the user customizable application user interface using standard web browser protocols.

71. (Currently Amended) A computer readable medium including an internet application, the internet application comprising:

~~metadata defining an application user interface, the application user interface including a user interface element with a user customizable immediate access keystroke combination, the application user interface configured for delivery to a client and configured to operate as an interface between a user and the internet application;~~

a user interface generator configured to generate the application user interface in response to a request from a client, the user interface generator configured to access using a user modifiable data record stored in a location physically remote from the client, the user modifiable data record configurable to characterize the a user customizable immediate access keystroke combination associated with a user interface element of an application user interface and having a function, the data record defining the function, the user interface generator further configured to determine a current state of the user customizable immediate access keystroke combination at substantially the time of the request and generate markup for the application user interface in response thereto, the generated markup language including the current state and operable to be transmitted to the client in order to display the application user interface including the current state; and wherein the application user interface is automatically generated and configured to perform the function for the user interface element when the immediate access keystroke combination is received; and

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a configuration system configured for a user to modify the user modifiable data record in response to receiving input from the user defining the customizable immediate access keystroke combination, the keystroke combination for a function to be performed for the user interface element, the data record being modified based on the input.

72. (Currently Amended) A computer program product embedded in a computer readable medium including an internet application for generating an application user interface, the internet application comprising:

computer program code for developing an application designer configured to develop an application user interface, the application user interface including a user interface element with a user customizable immediate access keystroke combination, the application user interface configured for delivery to a client and configured to operate as an interface between a user and the internet application;

computer program code for determining, in response to a request from a client, a current state of the user customizable immediate access keystroke combination at substantially the time of the request using a user modifiable data record stored in a location physically remote from the client, the user modifiable data record configurable to characterize the user customizable immediate access keystroke combination, the data record defining the function;

computer program code for generating a user interface generator configured to generate markup language for the application user interface including the current state of the user customizable immediate access keystroke combination, the generated markup language operable to be sent to the client to display the application user interface, the application user interface using a user modifiable data record stored in a location physically remote from the client, the user modifiable data record configurable to characterize the user customizable immediate access keystroke combination, the data record defining the function, wherein the application user interface is automatically generated and configured to perform the function for the user interface element when the immediate access keystroke combination is received; and

computer program code for allowing a configuration system configured for a user to modify the user modifiable data record in response to receiving input from the user defining

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the customizable immediate access keystroke combination, the keystroke combination for a function to be performed for the user interface element, the data record being modified based on the input.

73. (Currently Amended) An application execution system comprising:
 means for supporting an internet application;
 means for ~~automatically generating an application user interface~~ using a user modifiable data record ~~configured~~ to store data characterizing a user customizable immediate access keystroke combination, the data defining the function;
means for generating markup language for an application user interface, in response to a request from a client, the user modifiable data record being used to determine a current state of the user customizable immediate access keystroke combination at substantially the time of the request, the markup language including the current state, wherein the application user interface is configured to perform the function for the user interface element when the immediate access keystroke combination is received, the keystroke combination for the function to be performed for the user interface element being received from a user; and
 means for providing the generated markup language for the application user interface to a user the client, the application user interface including a user interface element, the application user interface configured as an interface between the internet application and the user, the user interface element including the user customizable immediate access keystroke combination, ~~the user interface element configured for delivery to a client over a computer network.~~